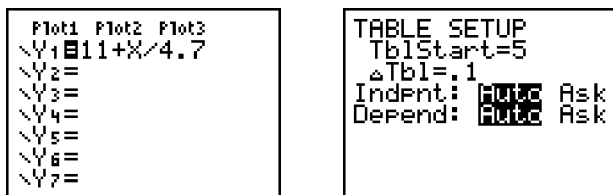


Note 2A • Tables

Once you have entered an equation into the Y= screen, you can create a table of values based on that equation.



Step 1: Enter the equation(s) into the Y= screen. (See **Note 1J**.)

Step 2: Press **2nd** [TBLSET].

- TblStart is the first x -coordinate you want to see in the table.
- ΔTbl is the amount of increase or decrease between the x -coordinates in the table.
- Select Auto for both Indpnt and Depend. (Use Ask for Indpnt to build a table where you enter x -coordinates one at a time.) Usually you will leave both of these settings on Auto.

Step 3: Press **2nd** [TABLE].

- You can scroll up and down the x -coordinates to search for a particular y -coordinate.

X	Y1
5	12.064
5.1	12.085
5.2	12.106
5.3	12.128
5.4	12.149
5.5	12.17
5.6	12.191
5.7	12.213
5.8	12.234

X=5

- You can arrow over to the y -column to see the number more accurately displayed (if necessary) at the bottom of the screen.

X	Y1
5.2	12.106
5.3	12.128
5.4	12.149
5.5	12.17
5.6	12.191
5.7	12.213
5.8	12.234

Y1=12.2340425532

- You can arrow up and highlight the Y1 header to see the equation displayed at the bottom of the screen.

X	Y1
5.2	12.106
5.3	12.128
5.4	12.149
5.5	12.17
5.6	12.191
5.7	12.213
5.8	12.234

Y1=11+X/4.7

- If you press **ENTER** while you are looking at the function, you can edit the equation and see the changes in the table. This action will also change the equation in the Y= screen.

(continued)

Table Zooming

When you are searching for a particular y -coordinate that does not appear to be in the table, you can use a technique called “table zooming.” Let’s suppose you enter the equation $Y_1 = 11 + X/4.7$ and you want to find the x -coordinate that corresponds to a y -coordinate of 20, but 20 is not in the current table.

- Press **2nd** [TBLSET].
- Start with a guess for a reasonably close x -coordinate and enter that value in TblStart, in this case, 0, and then enter a large value in ΔTbl , such as 10.

```
TABLE SETUP
TblStart=0
ΔTbl=10
IndPnt: Auto Ask
Depnd: Auto Ask
```

- Look for y -coordinates on either side of your search value. Arrow so that the value just less than your search value is at the top of the list.

X	Y ₁	
0	11	
10	13.128	
20	15.255	
30	17.383	
40	19.511	
50	21.638	
60	23.766	

X=0

X	Y ₁	
40	19.511	
50	21.638	
60	23.766	
70	25.894	
80	28.021	
90	30.149	
100	32.277	

X=40

```
TABLE SETUP
TblStart=40
ΔTbl=10
IndPnt: Auto Ask
Depnd: Auto Ask
```

- Return to **2nd** [TBLSET] and reduce ΔTbl by a factor of 10. Notice that the value you put at the top of the list is now in TblStart.
- Go back to step c and repeat until you have found the search value, in this case, 20.

X	Y ₁	
40	19.511	
41	19.723	
42	19.936	
43	20.149	
44	20.362	
45	20.574	
46	20.787	

X=40

X	Y ₁	
42	19.936	
43	20.149	
44	20.362	
45	20.574	
46	20.787	
47	21	
48	21.213	

X=42

```
TABLE SETUP
TblStart=42
ΔTbl=10
IndPnt: Auto Ask
Depnd: Auto Ask
```

X	Y ₁	
42	19.936	
42.1	19.957	
42.2	19.979	
42.3	20	
42.4	20.021	
42.5	20.043	
42.6	20.064	

Y₁=20

Note 2B • INVERSE Program

You will need a CBR (Calculator-Based Ranger). Connect the CBR to the calculator.

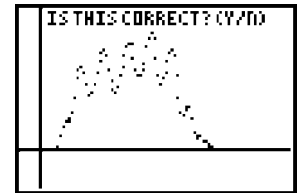
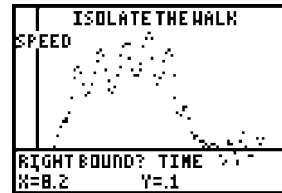
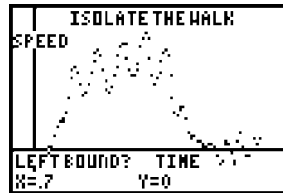
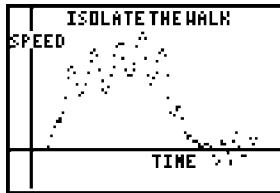
This program will record total time and average speed for six walks. For each walk, the motion sensor (CBR) is set to wait for its trigger to be pressed, then it records a walker’s speed for ten seconds. When the trigger is pressed, the walker should wait for a second or two, then walk two meters at a constant speed. The walker should come to a complete stop after walking the two meters and not move for the remainder of the ten seconds.

```
TIME and SPEED :
WALKER AT START
LINE. CBR 1M
BEHIND THE LINE.
WALKER BEGINS
AFTER CBR STARTS
--ENTER--
```

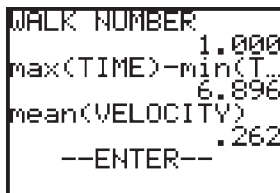
```
PRESS TRIGGER
TO START WALK.
PRESS ENTER WHEN
WALK COMPLETED
```

(continued)

Once the speed data is graphed, you'll mark the beginning of the walk (when the speed begins to increase), and the end of the walk (when the speed returns to zero). To do this, use the right arrow to move to the beginning of the walk and press **ENTER**. Then right arrow to the end of the walk and press enter. The calculator will then show just the selected portion of the graph and ask, "Is this correct?" Select Y or N. If you select N, you'll get another try.



The calculator will show the elapsed time for the walk (maximum time – minimum time) and the average of the speed (velocity) over this interval. Record this information in a data table. The time is measured in seconds and the speed is measured in meters per second. The program will repeat these steps six times.



PROGRAM: INVERSE

```

Disp " TIME and SPEED", " ", "WALKER
  AT START", "LINE. CBR 1M", "BEHIND
  THE LINE.", "WALKER BEGINS", "AFTER
  CBR STARTS"
{0}→L₁:{0}→L₂
Output(8,1," --ENTER--")
Pause
For(N,1,6)
Send({0})
Send({1,1,2,1,0,0})
Send({3,0.1,100,1,0,0,0,0,1,2})
ClrHome
Disp "PRESS TRIGGER", "TO START
  WALK.", " ", "PRESS ENTER
  WHEN", "WALK COMPLETED."
ExprOff
Pause
Send({5,11,1})
Get(L₄)
Get(L₃)
Repeat K=92
PlotsOff
Plot1(Scatter,L₃,L₄,.)

```

```

ZoomStat
Text(8,20,"ISOLATE THE WALK")
Text(8,0,"SPEED")
Text(50,50,"TIME")
Select(L₅,L₆)
Text(8,10,"IS THIS CORRECT? (Y/N)")
Repeat K=92 or K=71
getKey→K
End:End
ClrHome
max(L₅)-min(L₅)→L₁(N)
Disp "WALK NUMBER",N
Disp "max(TIME)-min(TIME)",L₁(N)
mean(L₆)→L₂(N)
Disp "mean(VELOCITY)",L₂(N)
Pause " --ENTER--"
End
Plot1(Scatter,L₁,L₂,□)
ZoomStat
0→Xmin:0→Ymin
Text(8,3,"SPEED")
Text(50,50,"TIME")
1/L₂→L₃

```

Note 2C • Instant Replay

Whenever you enter a command or expression into your calculator, it is filed and can usually be retrieved. The simplest filing is the Home screen command buffer. When you enter a command or expression into the Home screen, you can recall it by pressing $\boxed{2\text{nd}}$ $\boxed{\text{ENTRY}}$. Then, you can edit the command or expression by highlighting what you want to change and pressing $\boxed{\text{DEL}}$ to delete and/or $\boxed{2\text{nd}}$ $\boxed{\text{INS}}$ to insert to the left.

$3(4-5)+15$	12
$3(\blacksquare-5)+15$	

$3(4-5)+15$	12
$3(8-5)+15$	24

$3(4-5)+15$	12
$3(8-5)+15$	24
$3(8-25)+15$	-36